

WHAT IS CLAIMED IS:

1. A particle beam therapy system comprising:
 - a charged particle beam generator for emitting a charged particle beam;
 - at least one treatment room in which an irradiation unit for irradiating the charged particle beam is disposed;
 - a beam transport system communicated with said charged particle beam generator and transporting the charged particle beam emitted from said charged particle beam generator to said irradiation unit in said treatment room;
 - a first manual input device provided in said treatment room or a control room formed corresponding to said treatment room, and inputting an irradiation ready state;
 - a safety device for confirming that preparations for generation of the charged particle beam in said charged particle beam generator are completed and preparations for transport of the charged particle beam in said beam transport system for introducing the charged particle beam to said irradiation unit in the treatment room selected in response to a ready signal from said first manual input device are completed, followed by outputting ready information;
 - a ready state display unit for displaying the ready information; and
 - a second manual input device provided in said treatment room or said control room, and inputting an irradiation start instruction when the ready information is displayed by

said ready state display unit.

2. A particle beam therapy system comprising:

a charged particle beam generator for emitting a charged particle beam;

a plurality of treatment rooms in each of which an irradiation unit for irradiating the charged particle beam is disposed;

a plurality of beam transport systems communicated with said charged particle beam generator and transporting the charged particle beam emitted from said charged particle beam generator separately to said respective irradiation units in said plurality of treatment rooms;

a first manual input device provided respectively in said plurality of treatment rooms or a plurality of control rooms formed corresponding to said plurality of treatment rooms, and inputting an irradiation ready state;

a preparation confirming unit for confirming that, after a ready signal has been outputted from said first manual input device and the treatment room to which the charged particle beam is to be introduced has been selected, preparations for generation of the charged particle beam in said charged particle beam generator are completed and preparations for transport of the charged particle beam in the beam transport system for introducing the charged particle beam to the irradiation unit in the treatment room selected in response to the ready signal from said first manual input device are completed, followed by outputting

ready information;

a ready state display unit device provided in each of said treatment rooms or each of said control rooms and displaying the ready information for the corresponding treatment room; and

a second manual input device provided in each of said treatment rooms or each of said control rooms, and inputting an irradiation start instruction.

3. A particle beam therapy system according to Claim 1, wherein said first manual input device and said second manual input device are separate control buttons or switches disposed in positions different from each other.

4. A particle beam therapy system according to Claim 2, wherein said first manual input device and said second manual input device are separate control buttons or switches disposed in positions different from each other.

5. A particle beam therapy system according to Claim 1, further comprising an emission start controller for outputting an emission start signal based on said ready information and an irradiation start signal outputted from said second manual input device.

6. A particle beam therapy system according to Claim 2, further comprising an emission start controller for outputting an emission start signal based on said ready

information and an irradiation start signal outputted from said second manual input device.

7. A particle beam therapy system according to Claim 2, further comprising a treatment sequence deciding unit for deciding the sequence of introducing the charged particle beam to said treatment rooms based on the order in which the ready signals have been outputted from said first manual input devices, and outputting treatment room information representing the selected treatment room with top priority, to which the charged particle beam is to be first introduced, wherein the ready state display unit provided corresponding to the selected treatment room with top priority displays the ready signal.

8. A particle beam therapy system according to Claim 7, further comprising:

first element groups disposed respectively in said beam transport systems, and a second element group included in said charged particle beam generator;

a control information forming unit for forming control command information, which includes control information for the first element group in the beam transport system for introducing the charged particle beam to the selected treatment room and control information for said second element group, by using at least the treatment room information representing the selected treatment room and treatment plan information specified depending on patient

identification information; and

an information confirming unit for selecting, from among element information including detected status information of said first element groups and detected status information of said second element group, the status information of the first element group in the beam transport system extended into the selected treatment room and the status information of the second element group, and confirming that the selected status information is matched with the control information for the relevant element groups, which is included in said control command information.

9. A particle beam irradiating method for irradiating a charged particle beam emitted from a charged particle beam generator to a patient in selected one of a plurality of treatment rooms by an irradiation unit in the selected treatment room, the irradiating method comprising the steps of:

when preparations for irradiation to the patient in the treatment room are completed, operating a first manual input device provided in the treatment room or a control room formed corresponding to said treatment room, thereby outputting an irradiation ready signal;

thereafter confirming that preparations for beam transport in the beam transport system for introducing the charged particle beam to said irradiation unit in the selected treatment room are completed;

displaying beam transport ready information upon the

confirmation in the above step; and

after displaying the beam transport ready information, operating a second manual input device provided in the selected treatment room or the corresponding control room, thereby outputting a signal instructing the start of irradiation.